Primrose, Annette

From: Lewis, Sally
Sent: Tuesday, June 08, 1999 4:45 PM
To: Butler, Lane; Dayton, Christine; Brooks, Laura; Primrose, Annette; Fiehweg, Robert
Subject: Performance Monitoring Section of the SPP DD

Importance: High

Attached please find the revised Section 5.5 for the SPP DD. Rich Horstmann has reviewed the section and his comments are incorporated.

perf6_8_99.doc

RE: RF/RMRS-98-286.UN
ADMIN RECORD

1/3

I101-B-00035

5.5 Performance Monitoring

Performance monitoring will be conducted to determine the effectiveness of the system in meeting the project objectives. Monitoring of the treatment system will be accomplished by comparing results of the treatment system influent and effluent. Additionally, surface water quality will be monitored at a point of evaluation in North Walnut Creek at a location downgradient of the SPP. The current stream standard for nitrate, 100 mg/L, is a temporary modification to the 10 mg/L water quality standard. The current stream standard is effective until 2009. After expiration of the temporary modification, the stream standard is expected to decrease to 10 mg/L.

Preliminary decision rules for the project are presented below. The performance monitoring data will initially be used to evaluate and optimize the treatment system efficiency and effectiveness. As goals for post-closure conditions are established, the performance monitoring data will be used to further refine the decision rules for the treated effluent. Decision rules for this monitoring will be defined and evaluated as a special project within the Integrated Monitoring Program (IMP) and refined as necessary in the final Site Corrective Action Decision/Record of Decision (CAD/ROD).

The schedule for monitoring is shown in Table 5-1. After sufficient data are gathered to demonstrate stable conditions have been achieved, the requirements may be changed to annual or less frequent monitoring.

Table 5-1. Schedule for Water Quality Sampling and Water Level Measurements.

Task	Month 1-6	Months 7-12	Subsequent Years
Treatment System Influent	Monthly	Quarterly	Semi-Annually
Treatment System Effluent	Monthly	Quarterly	Semi-Annually
Downgradient Surface Water Quality	Monthly	Quarterly	Semi-Annually
Hydraulic Head in Collection Trench	Monthly	Quarterly	Semi-Annually

Influent concentrations will be measured at the piezometer nearest to the collection cell. Effluent concentrations will be measured at the metering manhole to determine treatment efficiencies. The influent will be sampled at the same frequency as the effluent. Physical problems, not treatment limitations, are expected to determine when the treatment media will require replacement. It is expected that the organic treatment media will provide a carbon source in excess of what would be needed for nitrate reduction and therefore would not require replacement. However, the organic media may plug due to bacterial growth blocking the pore spaces. To detect such a condition, piezometers will be installed near the treatment cell to monitor water levels. Steadily increasing water levels may be an indication that the media is plugged, requiring replacement. Replacement will be accomplished by digging up the spent treatment media and replacing it with new.

If effluent concentrations exceed system performance objectives, then monthly or more frequent sampling will be performed until the cause is determined. If a corrective action is required, then monthly effluent sampling will continue for at least three months after a corrective action is implemented to ensure that the action is sufficient.

Based on preliminary calculations provided by CDPHE, the current stream standard will be achieved if effluent concentrations are 500 mg/L. Effluent concentrations are expected to achieve this level. These preliminary calculations indicate that effluent concentrations must meet 50 mg/L to achieve surface water standards after 2009. Decision rules will be refined as performance monitoring trends are established and in anticipation of the decrease in the stream standard from 100 mg/L to 10 mg/L in 2009.

Groundwater monitoring will continue during and after the remedial action has been completed, as described in the IMP. Groundwater wells 1786 and 1386 currently monitor the drainage and will be, at a minimum, monitored for nitrate and uranium. An additional well cluster to the north of the barrier will be

installed to provide additional data and for performance monitoring purposes. The frequency of sampling and analytical suites will be consistent with the IMP and will measure uranium and nitrate concentrations.

Performance monitoring in the North Walnut Creek Drainage will be implemented at station GS13 to monitor changes in surface water quality as a result of the selected remedy. This location was selected because it is immediately downstream of where the groundwater plume intersects the drainage. The loading to the stream will be evaluated to determine long-term system performance and will be reported on an annual basis. In accordance with the Action Level Framework, if the stream concentrations exceed stream standards, then an evaluation will be performed after consultation with the regulators.

If stream standards are being met consistently at GS13 and if simple modeling techniques show that the stream standards would be met without treatment, based on the influent plume concentrations and flow rate, and the stream concentrations and flow rate that exist at that time, then treatment will be discontinued. This system is expected to continue operations until after Site closure when stream flow and concentrations have stabilized. The system will be abandoned in place as a flow-through system. System shutdown will be re-evaluated as part of the final Site CAD/ROD.